## REMARKS

Claims 1-6 and 9-14 are pending in this application. Claim 1 has been amended to include recitations from claims 7 and 8. Accordingly, claims 7 and 8 have been cancelled without prejudice or disclaimer. Claim 1 has also been amended by deleting the term "without using a fatty acid as a carbon source". Claim 6 has been amended to clarify that the "host of the transformed microorganism" is selected from the recited species and not to limit its scope. Claims 1 and 3-8 are directed to the elected invention. Claims 2 and 9-14 are directed to a non-elected invention and may be cancelled by the examiner upon the allowance of the claims directed to the elected invention. The amendments to the claims do not introduce any new matter.

Claims 1 and 3-8 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Application No. 2001/340078 to Satoshi et al. (hereinafter also referred to as "Satoshi") in view of International Publication No. WO 96/25509 to Naylor et al. (hereinafter also referred to as "Naylor"). The cited references do not render obvious claims 1 and 3-8.

The present invention relates to using microorganisms which can produce copolyester without using a fatty acid as a carbon source. By using such a microorganism, control of the monomer composition of the copolyester is enabled simply by adjusting the specific substrate feed rate. The addition of a fatty acid, such as propionic acid, is not necessary. Furthermore, the copolyester according to the present invention, as now recited in claim 1, contains 3-hydroxyhexanoic acid units.

As appreciated by the Examiner, JP2001-340078 to Satoshi differs from the present invention in that it does not teach keeping the specific substrate feed rate of the carbon source at a constant value. It was then concluded in the office action, that it would have been obvious for a skilled person to apply the carbon source feeding strategy of Naylor et al. to the PHA culture methods of JP2001-340078 in order to increase the yield of PHA. However, even based on Naylor et al., it is impossible to expect that the monomer composition of the copolyester can be adjusted as achieved in the present invention.

As pointed out in the Office Action, Naylor et al. refers to an average oil uptake ratio. However, the purpose of Naylor et al. was to avoid toxicity. Average oil uptake ratio in Naylor et al. has nothing to do with controlling the monomer ratio of the copolyester.

In addition, a fatty acid was essential to produce a copolyester by the microorganism in Naylor et al., as pointed out in our previous response. The microorganism used in Example 1 in Naylor et al. differs significantly from the microorganism used according to the present invention since propionic acid is essential for production of the polyhydroxybutyrate/valerate (PHBV) copolyester according to Naylor et al.

It should be noted that when propionic acid is added as the carbon source in the culture medium, microoganisms convert the propionoic acid to 3-hyroxypentanoyl-CoA, via propionyl-CoA. Then 3-hydroxypentanoyl-CoA leads to the production of the PHBV copolyester. By this synthetic pathway, the microorganism in Naylor et al. can produce a polyester comprising PHBV only when propionic acid is present in the culture medium.

Moreover, on page 4, first full paragraph, Naylor et al. state that "If the aliphatic acid contains an even number of carbon atoms and is the sole carbon source in step (e), the product PHA is substantially or wholly polyhydroxybutyrate (PHB) homopolymer. If polyhydroxybutyrate/valerate (PHBV) is required, there should be present a carbon source containing an odd number of carbon atoms; this may be part or all of the aliphatic acid (derivative) or may be additional thereto, for example propionic acid or n-propyl alcohol." This description shows that addition of propionic acid is essential for production of PHBV in Example 1. If propionic acid were not added, PHBV would not be produced and, instead, PHB homopolymer would be produced.

Further, Naylor et al. only disclose production of PHSV as copolyester, and they do not teach a copolyester comprising 3HH. This is in contrast to the microorganism of the present invention where a fatty acid is not essential to produce a copolyester, and the copolyester comprises 3HH. Therefore, Naylor et al. do not suggest or imply that by adjusting oil uptake ratio, the monomer composition of poly(3HH-co-3HH) can be controlled.

The purpose of adjusting oil uptake ratio, the method to obtain copolyester, and the composition of the copolyester in Naylor et al. are all different from the present invention. Considering these differences, it would be impossible for persons skilled in the art to expect the effects of the present invention from applying an average oil uptake ratio from Naylor et al.to the PHA production system in JP2001-340078.

On pages 11-12 of the Office Action dated December 23, 2008, the Examiner states that it is obvious for a skilled person to apply the carbon source feeding strategy of Naylor et al to the PHA culture methods of JP2001-340078 in order to increase the yield of PHA. However, the effect of the present invention is not simply to increase the yield of PHA. The important effect of the present invention is that it became possible to adjust the molar ratio of the copolyester, by simply controlling the specific substrate feed rate of the carbon source. This effect is clearly demonstrated as 3HH content (mol %) in the Tables in the present specification.

The mere fact that the cited art may be modified in the manner suggested in the Office Action does not make the modification obvious, unless the cited art suggests the desirability of the modification or adequate rationale exists to do so. No such suggestion appears in the cited art in this matter nor has the requisite rationale been adequately articulated. . The Examiner's attention is kindly directed to *KSR Int'l Co. v. Teleflex, Inc*, 127 S. Ct. 1727 (2007); *In re Lee* 61 USPQ2d 1430 (Fed. Cir. 2002), *In re Dembiczak et al*. 50 USPQ2d. 1614 (Fed. Cir. 1999), *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984), *In re Laskowski*, 10 USPQ2d. 1397 (Fed. Cir. 1989) and *In re Fritch*, 23, USPQ2d. 1780 (Fed. Cir. 1992).

Also, the cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render a rejection under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attainable by the present invention as discussed above needed to sustain a rejection under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc*, supra; *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966). As discussed above, the improved solubility is not suggested by the cited art.

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc*, supra; *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re Antonie*, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, supra, *In re Burt et al*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

In view of the above, consideration and allowance are respectfully solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees due with this paper to Deposit Account No. 22-0185, under Order No. 21581-00476-US from which the undersigned is authorized to draw.

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Respectfully submitted,

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